School Shop

vol. XII no. 5

JANUARY, 1953

Sold on Industrial Education
by Charles R. Hill

Techniques for New Teachers
by R. H. McGinnis

Aluminum Nutcracker
by Murray R. Brooks

Graphic Arts for the Small School
By John Austin Woolley

Cover story: Student in the Denver, Colorado, public schools working on a hand-tooled leather bag. J. Osborne Johnson is director of industrial arts in Denver.

THE MAGAZINE FOR TEACHERS OF INDUSTRIAL EDUCATION

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School Shop TALK

COMMENTS ON ISSUES FACING INDUSTRIAL EDUCATION

Eye and Interest Appeal

We are greatly interested in a pamphlet entitled *A Statement of the Place and Purpose of Industrial Arts in Education* which has just come to our desk. This publication has been prepared by a subcommittee of the AVA Industrial Arts Policy and Planning Committee and is for general distribution.

In view of the high professional standing of the members of this committee we hesitate to comment adversely on any pronouncement issued under its authorship. However, we have never been accused of shirking our responsibility to avail ourselves of the great American privilege of free expression of opinion.

In the first place, we would like to compliment those responsible for the pamphlet on its timeliness. A pronouncement of this kind has been needed for a long time so we are happy to find that some action has been taken on the matter. Unfortunately we find no indication of the type of individual to whom it is addressed.

If it is intended for those employed in the field of industrial arts, it is our feeling that it is merely a reiteration of what we find in the host of books and magazine articles already in print dealing with the subject. While repetition is good pedagogy, it can be carried to excess.

On the other hand, if it is intended for the layman or for the administrative officers in our public schools, it is altogether too wordy. Moreover, under the "Purpose" of industrial arts we find that the authors stress the acquisition of skill and technical knowledge, while they ignore the understanding of the qualities of industrial materials, and the appreciation of fine craftsmanship. Some of these are mentioned in the "Definition" on page three but, as a layman, when one wishes to know the "why" of the program it would be natural for him to refer to the "Purpose" rather than "Definition."

It would seem that the purpose of a publication of this kind would have been served more effectively if the authors had relied less on text material, and placed more emphasis on diagrams or charts such as one finds on page 17 of Newkirk's book, *Organizing and Teaching the General Shop.* This type of presentation can clarify concepts for laymen much better than the use of words.

The layman and the school superintendent are apt to be busy people so if we wish to impress them with the value of the type of work we represent, we must catch their eyes and interest quickly rather than to compel them to read a dissertation on the subject.—*T.D.*

No Shop Teachers!

A few weeks ago the Fund for the Advancement of Education, which is financed by the Ford Foundation, announced the names of 193 high-school teachers who had each been named recipients of a fellowship for the current year to enable them to "deepen their liberal education, improve their teaching ability, and increase their effectiveness as members of their school systems and communities."

The stipends averaged $5275 apiece and were awarded on a national basis.

This whole program should do much to improve the quality of teaching in secondary schools and aid in a further purpose, which is to "enable teachers to see more clearly their teaching assignments in broad perspective. . . ." It excludes work in education or their major fields.

The disheartening fact about the awards is that only one teacher of industrial arts and no teacher of trade and industrial education received a fellowship. This was in spite of the fact that the highest number of awards was in the literature, music, and art fields with 71.

Something is amiss somewhere. The members of the profession may not have been aggressive about going after awards; the quality of the applicants may not have been up to snuff; the awarding group may not have been aware of the need for the very objective it seeks in industrial education. Whatever the reason, if the program is continued for another year, shop teachers should be well represented among the recipients.—*L.W.P.*

Atlas FINE TOOLS FOR A BROADER VOCATIONAL PROGRAM

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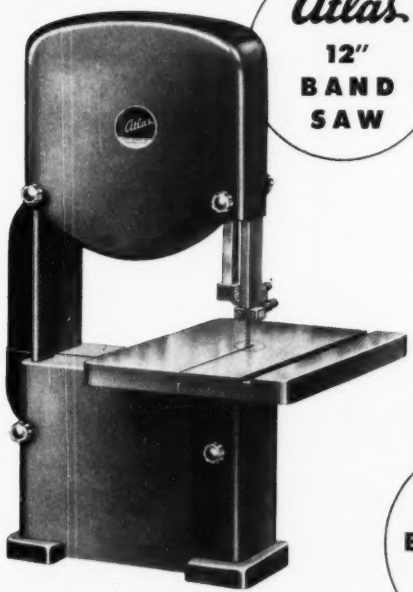

Whether your students go from high school directly to industry, or take shop courses as a sound basis for engineering, their progress can be faster with the broadest possible knowledge of how to use power tools.

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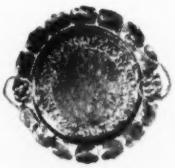
Instructor A. B. Hardee and student Robert Timberlake, 15, of Lexington High School, Lexington, N. C., won top honors with this cedar chest.

Mr. Charles Furnari and 17-year-old James Bowles, of Wappingers Central School, Wappingers Falls, N. Y., were recognized for this leather gun belt.



This 24-inch aluminum tray won acclaim for maker Robert Arter, 16, and his teacher, Mr. J. F. Nihart, of Verdugo Hills High School, Sunland, California.

Mr. Clarence Cullimore supervised student Roger Phillips' winning architectural entry. They represent Bakersfield High School, Bakersfield, California.

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Good School News

GRAPHIC ARTS—THE EDUCATIONAL FIELD WITH A FUTURE

American Type Founders, Department of Education, 200 Elmora Avenue, Elizabeth, New Jersey

DETROIT INTERMEDIATE SCHOOLS HAVE BROAD GRAPHIC ARTS PROGRAM

Established as part of educational system for many years

Graphic arts education has been an accepted part of the industrial arts program in the Detroit public schools for more than thirty-five years.

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Typography and actual press work are emphasized, and other phases of graphic arts are included as part of the regular instructional program.

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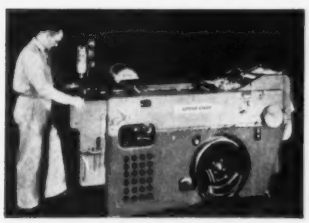

The ATF Little Giant is an ideal press for student instruction because of its ease of operation, and the wide variety of work it can print. It introduces the student to the whole field of letterpress printing because it operates on the same principle as the Kelly and other larger presses.

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For students planning a future in the graphic arts, experience on the Little Giant 6 provides particularly valuable experience, since it is a press that is finding ever-increasing use in the industry.

ATF Information Aids Graphic Arts Industry

The Little Giant "Ten Strike" booklet is one of many publications ATF has prepared to aid the Graphic Arts Industry. With 16 photographs of Little Giant features, this booklet serves to thoroughly acquaint the reader with this particular press, and enables him to form a standard for comparing various presses of this size. ATF's Department of Education will be glad to furnish a copy of this booklet for use in your classes.

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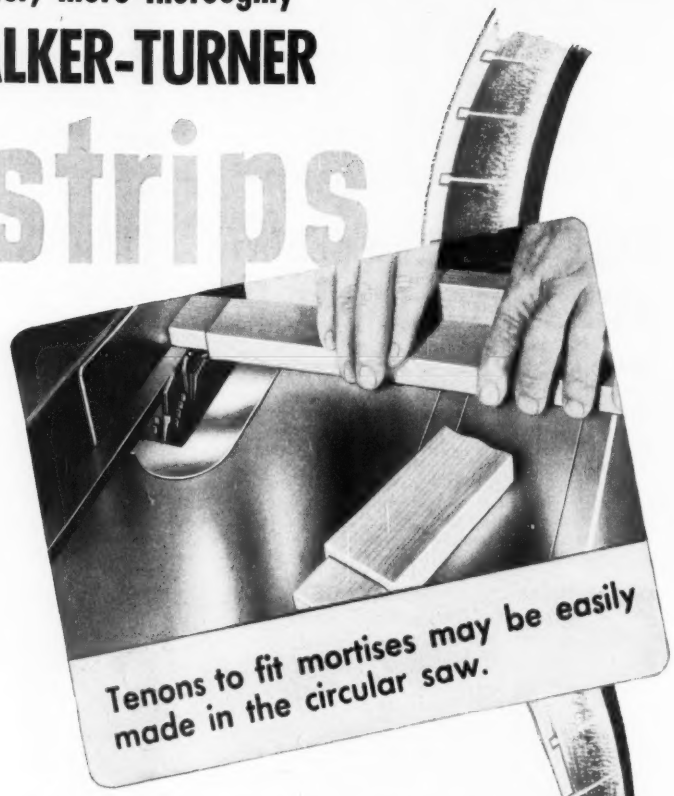

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Research shows laymen and administrators are

Sold on Industrial Education

By Charles R. Hill

Assistant Professor of Industrial Education, University of Illinois

INDUSTRIAL education has strong support from laymen, former students, and school administrators a recently completed research study* on the status and need for industrial education in Missouri indicates. Missouri is a fairly typical state so that the results from this survey are probably valid in other areas of the country as well.

What Information Was Sought

Both laymen and school administrators were surveyed concerning the need for industrial education. The laymen—parents, employers, and recent high-school graduates—were asked to express their opinions on the need for industrial education, their willingness to support the program through taxation, and how the schools should provide such instruction. They were also asked to indicate the types of industrial education programs that should be provided and the nature of the industrial activities which should be included in these programs.

The school administrators supplied information on the nature of the industrial activities preferred for inclusion in industrial arts and the trades for which they believed the schools should prepare youth. In addition, they gave information concerning the grade levels in which industrial-arts and trade courses should be offered, the number of units, if any, that should be required, and the grade levels in which required courses should be placed.

Who Was Surveyed

The five different groups surveyed included boys who were graduated from high school in the class of 1949, members of parent-teacher associations who had children in high school, employers in manufacturing concerns, superintendents of schools with high school enrolments of 100 or more which did not offer any form of industrial education, and principals of high schools which offered some form of industrial education.

The names and addresses of the boys who graduated from high school in the class of 1949 were obtained from diversified occupations coordinators in eight of the nine out-state schools which offered both industrial arts and vocational-industrial education. Random-sampling techniques were used to determine which of the graduates would be sent information forms. Of the 353 forms mailed to 1949 graduates, 162, or 28.9 percent were returned.

Information pertaining to the names and addresses of high-school parent-teacher association members was obtained from state and local officers in the Missouri Congress of Parents and Teachers. Of the 365 information forms sent to parents, using random sampling, 177, or 48.5 percent were returned.

The 1947 *Missouri Directory of Manufacturers* was used to compile the mailing list for employers. Random-sampling techniques were used to determine which employers were to be surveyed. Of the 255 information forms mailed to this group, 69, or 27.1 percent were returned.

During the 1949-50 school year there were 200 high schools with enrolments of 100 or more which were reported in the *Missouri School Directory* as not offering any form of industrial education. The superintendents of these schools were mailed forms requesting data concerning the need for industrial education in these schools. Of the 200 forms mailed to superintendents, 124, or 62.0 percent were returned.

The principals of the 244 high schools which offered some form of industrial education—industrial arts, diversified occupations, and/or day-trade classes, were also asked to supply data concerning the need for expanding these programs. Of the information forms mailed to principals, 167, or 68.4 percent were returned.

Findings

A tabulation of the opinions received from laymen showed that they were overwhelmingly in favor of the public schools providing instruction in industrial education. Less than 3 percent of all the respondents were opposed or uncertain about the need for such educational programs.

The responses bear out that laymen were willing to financially support such educational programs. Although some discrepancy existed in the number of laymen desiring the programs and those willing to support it, approximately 85 percent indicated that they believed in industrial education to the extent that they were willing to support it through taxation. Only about 3 percent were opposed to supporting the program through taxes, while slightly more than 12 percent were uncertain about the matter.

Industrial-education teachers will be interested in how laymen propose to make more room in the curriculum for industrial education. About 85 percent indicated that it should be provided by adding to what the schools are offering. When it comes to the possibility of dropping certain other subjects in the curriculum to make room for industrial education, about one-half of the laymen were opposed.

The consensus showed that laymen favored the cooperative diversified-occupations type of organization for high-school industrial-education programs. Industrial arts followed closely in preference, while day-trade subjects ranked third. In addition, there were over half of the laymen who believed that the public schools should provide for evening adult classes in industrial education.

Teachers and administrators of industrial arts and day-trade programs are frequently confronted with the problem of what industrial activities and shop facilities to include in their programs. This is little or no problem to coordinators of diversified occupations because of the very nature of their programs—related information is learned in the school classroom, while job skills are learned through on-the-job training provided by the employer.

Chief among the industrial activities recommended by laymen and school administrators for inclusion in industrial-arts programs was woodworking.

(*Continued on page* 26)

* Hill, Charles R., "A Study of the Status and Need for Industrial Education in Missouri." Unpublished doctoral dissertation, University of Missouri, Columbia, 1950.

Techniques for New Teachers

By R. H. McGinnis

Burris Laboratory School, Muncie, Indiana

BEGINNING teachers (and some experienced ones) sometimes run into difficulties in teaching an industrial-arts general shop in three phases of class operation: starting a new class, keeping the class moving, and ending a class.

Much has been said about getting classes started but too often not enough information is offered on how to keep a class moving or how to end it in a satisfactory manner. Specific techniques are given here for all three phases of class operation. They are not intended to be a hidebound manual of operation but rather to be suggestive and should be altered to suit individual class situations. The new and the experienced teacher both should find some suggestions that could be helpful in carrying on an educationally productive program.

I. To Start a Class

Classes should be started smoothly and in good order. Getting acquainted, class organization, and work experience constitute the major activities. The points below are offered as a suggested procedure which should be adapted to meet the local situation.

Getting Acquainted

1. Check pupils' names with the office record.
2. The teacher should pronounce each name and write it on the board.
3. An introductory talk might include the following: (*a*) introduction of the teacher to the students; (*b*) talk over the experiences of the students; (*c*) discuss available opportunities, responsibilities, etc.; (*d*) brief discussion of safety measures.
4. Explain fee system.
5. Explain locker system.

Class Organization

1. Tour of shop.
2. Class discussion, including following items: (*a*) general discussion of opportunities available in the industrial-arts shop; (*b*) more specific discussion of various units such as woodwork, photography, etc.; (*c*) discussion of the method of operation and work experiences of a specific unit such as metal-working with the students participating; (*d*) discuss ways of learning and doing jobs and operations; (*e*) talk over planning, working drawings, suitable projects, etc.
3. Divide the class according to their interests, abilities, and needs.
4. Explain and elect a workable personnel organization.
5. Explain use of progress records.

Work Experience

1. Preparatory talk which might include: (*a*) review of previous class meetings; (*b*) discussion of questions students may have; (*c*) division of class and how each student will get started to work.
2. Assignment to work stations.
3. Distribution of instructional material.
4. Group and individual demonstrations.
5. Individual work.

II. To Keep the Class Moving

Once a class is started, it is important that it be kept moving in a purposeful manner. The information which follows has been found helpful. It must be realized that each student is an individual and that the solution to one pupil's problem is not always the best answer for another pupil who has the same problem. Experience will show the teacher how to change his approach as needed.

A Guide for Working with Students

1. Keep in mind that the teaching of students is more important than the subject matter.
2. Be friendly but not a "pal" to students. (Beginning teachers often make this mistake.)
3. Help the students do the following things *but only when needed:* (*a*) plan their work; (*b*) select materials for project use; (*c*) work materials properly; (*d*) make good use of materials; (*e*) make good use of their time; (*f*) use tools correctly; (*g*) use correct methods of procedure; (*h*) evaluate their work.
4. Make an evaluation of work accomplished: this is a continuous process from the first day of class and, if properly done, will aid learning. Here again, experience will help.
5. Stress safety measures as part of the regular instruction.
6. Know what each student is doing and his or her progress at all times. (This is easier said than done.)

III. To End a Class

Much has been said about "starting" classes but it is also important that classes be ended in an educationally profitable manner. Following is a plan that can be modified by the teacher to suit his purposes.

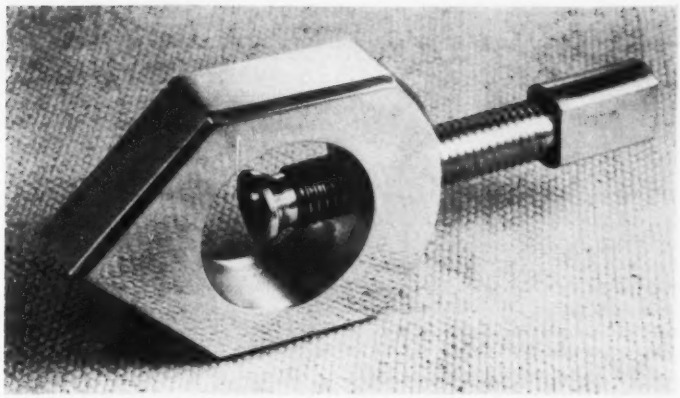
Methods and Problems with Possible Solutions

1. Encourage students to complete all projects and activities. Students may need extra encouragement or help at this time. Experience seems to indicate that it is best to give the pupil enough help to complete the project if at all possible.
2. Provide for those pupils who complete their projects and activities one or two days early: (*a*) perhaps the student who finishes early can help some other pupil complete his project; (*b*) house cleaning usually needs to be done; (*c*) the pupil can do planning for the next class; (*d*) work done in class can be reviewed and evaluated; (*e*) leisure reading can be done.
3. Determine cost of materials and collect money: (*a*) it is helpful if students determine cost of materials before project construction takes place; (*b*) be sure that accurate count is kept and receipts given for any money collected.
4. Evaluation of work done: (*a*) it is often helpful to ask students to make a written evaluation of their own work as it provides a learning situation in which they have to think; (*b*) an oral evaluation is helpful and also provides a learning situation. (All projects made during the term can be brought together and students may ask questions, tell about their projects, etc.)
5. Determine grades for each student: (*a*) grading is a continuous process from the beginning of the class until the last day; (*b*) grading should be based on the accomplishment of the aims and objectives of the course by individual students.
6. Grades and comments on pupils' report cards: (*a*) it is necessary to put grades on each pupils' grade cards and comments are often helpful; (*b*) in many cases, the comments carry more meaning than the letter or figure grade.
7. Housekeeping: (*a*) clean and oil machinery; (*b*) sharpen tools; (*c*) clean finish room; (*d*) repair equipment, etc.
8. Clean lockers: (*a*) lockers must be left clean for next class; (*b*) pupils' property must be removed and the last class day is a suitable time. ★

Mothers like this

Aluminum Nutcracker

By Murray R. Brooks
West Orange, New Jersey, High School



Walnuts as well as smaller nuts can be accommodated in this attractive and easily operated nutcracker which makes an ideal project for the machine shop because of its usefulness.

THIS project has worked out ideally in our machine shop. It is attractive, parents like it, and it gives an opportunity for learning a number of machine-shop operations. Many of these nutcrackers have been made by our students.

Mothers are especially pleased when their sons bring this nutcracker home because it works so well. The conventional nutcracker is difficult to control so the nutmeat is often mashed and shells are sent flying around the room.

Just a twist of the wrist and the heavy thread advances the spindle far enough to crack the shell without doing further damage. Little strength is required to operate it.

This project affords the machine-shop student the opportunity to operate a number of machines. In making the body of the cracker, there is precision layout work, drilling, threading, boring, milling, hand filing, and polishing. In making the spindle the student has the opportunity of performing various lathe operations and thread cutting.

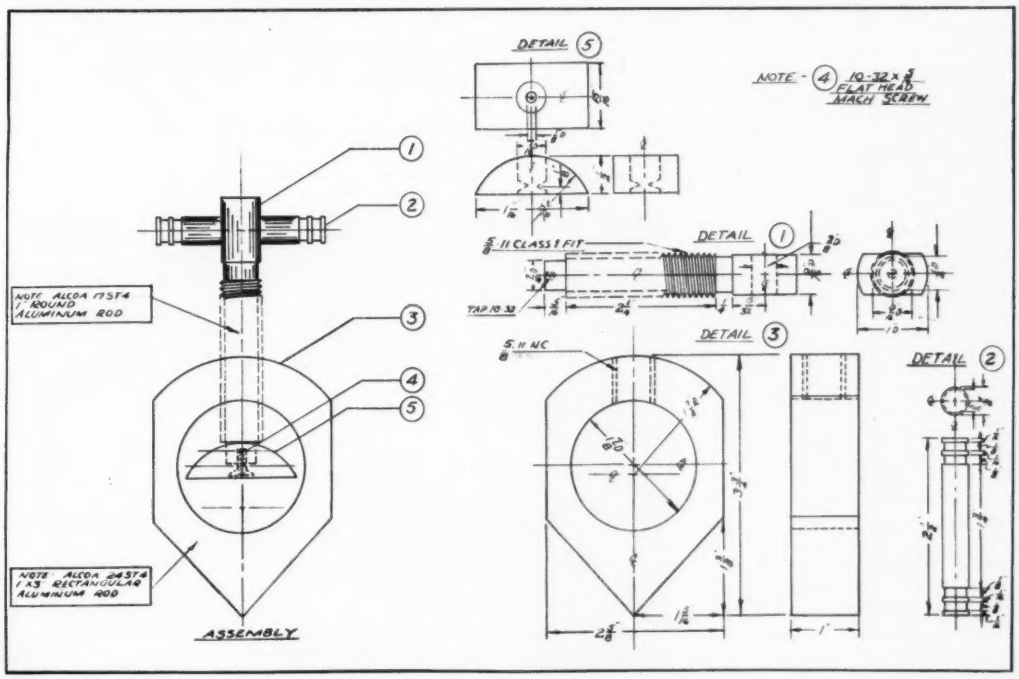
This type of aluminum machines beautifully and polishes to a mirror-like lustre.

Operational steps can be worked out by the student as part of the learning process with the instructor approving them before work begins.

The body is made of 24ST4 aluminum. After machining it should be draw filed and polished. The outside edges should be slightly chamfered.

The spindle is made from 17ST4 aluminum rod. The crosspiece may be ornamented or left plain. The crosspiece was omitted from the cracker shown in the picture as sufficient leverage can be obtained without it.

The knob (Part 5) is also 24ST4 aluminum and is held in place by a machine screw which should be stainless steel, brass, or aluminum. ★



Graphic Arts for the Small School

By John Austin Woolley

A LOW-BUDGET graphic-arts course for secondary schools which fills the requirements for general education in the field of graphic arts has been developed at The Stout Institute, a four-year Wisconsin state college at Menomonie preparing teachers of industrial education. This new course is particularly adaptable to both the needs and the limitations of the small school.

Realizing that graphic arts was not being taught in many small schools because of lack of funds for expensive printing equipment, The Stout Institute has constructed a course which can be taught with minimum equipment.

To test the potentialities of such a program, student teachers at the college, working under the direction of Lloyd Whydotski, head of the Stout printing department, set up an experimental shop for the Menomonie public high school.

This course—including projects, demonstrations, and teaching aids—is adapted directly from the college-level course in graphic arts as taught at The Stout Institute. The only major change is in the substitution of a modified vocabulary which takes into account the high-school student's lack of technical knowledge and experience.

Processes included in this course are classified under five major divisions: *planographic*, or flat-surface printing, which includes lithography and spirit duplication; *relief printing*, or printing from a raised surface, which includes block cutting, rubber-plate making, and zinc etching; *stencil duplication*, which includes mimeographing, photography, silk screen, open stencil, and blueprinting; and *intaglio printing*, or printing from a depressed surface, which includes alkali etching and celluloid engraving. Included under the title of related processes are bookbinding and marbling.

The equipment necessary for this course can be purchased reasonably or made in the school shop. For instance, the school woodworking shop can build silk-screen frames and other small equipment at a very small cost. An old hand washing-machine wringer can be easily converted into an excellent intaglio press, which is the only major piece of equipment required.

Graphic arts as it is being taught to Menomonie public-school students is a balanced course. The basic weakness in some graphic-arts courses is that they are too narrow in scope and tend to overemphasize one or two phases of the field. This statement is based on observation of printing and graphic-arts shops in schools of all sizes and types in the Midwest.

The student teachers who set up the shop and are teaching the course to the Menomonie high-school students are helped by their membership in the Stout Typographical Society, a professional organization at the college devoting itself to the improvement of graphic-arts instruction. Every year the S.T.S. makes a field trip during which members visit schools throughout the Midwest. A major objective of these trips is to learn first hand what is being done by teachers in the field. In order that the schools visited may also benefit from the S.T.S. tour, demonstrations of basic graphic-arts processes have been developed and are presented at the schools by S.T.S. members.

The development of portable equipment and the preparation of suitable demonstrations for these trips proves to be excellent experience for Stout cadet teachers who some day will face the problem of setting up their own graphic-arts course.

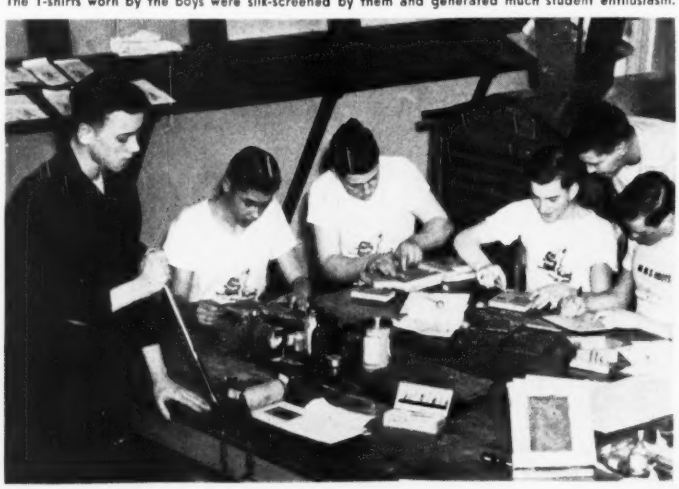
The interest of high-school students in a varied graphic-arts course is easily gained and held. On its field trips the S.T.S. has always found that student audiences are very much interested in the demonstrations. Often students come up after the "show" is over to ask questions.

Students in the course at the Menomonie public high school are finding graphic arts engrossing, as is shown by the quality of their work. Such innovations as the silk-screen project of placing a design on a T-shirt are proving very popular. This technique demonstrates the silk-screen process in a more dramatic manner than simply printing the design on paper. Such projects as this are first thoroughly tested on S.T.S. field trips, where they must hold the interest of restless teen-age audiences.

For the small school which does not have an industrial-arts teacher who can handle a full-fledged graphic-arts course, this streamlined course—or any desired portions of it—can easily be fitted into the program.

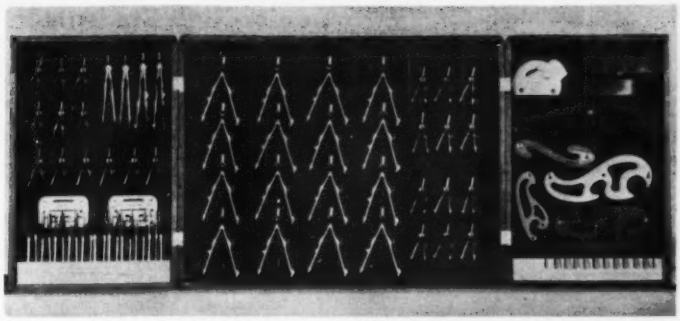
Smaller schools which have had no printing shop or printing teacher have often overlooked the possibilities of the graphic-arts shop, a field whose potentialities are far too valuable to be ignored when it is so easily possible for a small school with its limited budget to teach graphic arts on a general-education basis. ★

Menomonie High-School boys working on intaglio printing, block cutting, and silk-screening. The T-shirts worn by the boys were silk-screened by them and generated much student enthusiasm.



Student interest is aroused by this

Portable Drafting Case



This case holds enough instruments for a large class and folds into a compact unit which can be stored away in a closet so pilfering is avoided. It is lined with bright green felt.

By Ray G. Lowry

Eastern Junior High School, Pontiac, Michigan

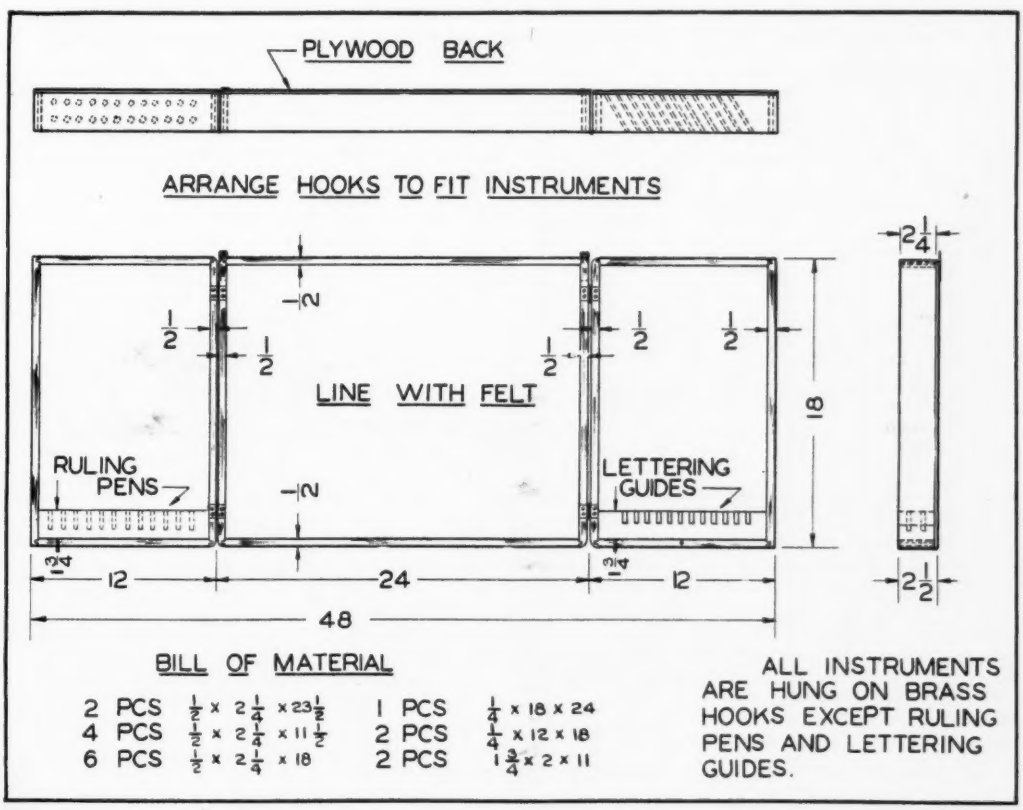
PROBABLY every drafting teacher has been faced with the problem of the satisfactory storage of his drafting instruments, so they might be easily checked and cared for. Developing student interest to a point where they will have a personal interest in the care of the drafting tools they are using also presents a problem.

It has always been the feeling of this writer that the drafting room is a perfect place to develop good character as well as the power to visualize and the ability to produce good drawings.

The writer has used various methods for storing drafting instruments, but never achieved the student interest desired. Through several semesters of experimenting, the method of storing instruments shown here was developed. The idea for this instrument case was conceived in the drafting-room and constructed in the woodshop by one of the drafting students. It holds all necessary equipment needed for junior-high drafting work. The instruments have a definite place in the case, so the instructor or students can readily spot any instrument that is missing or out of place.

Use of all available space was made by designing the case so the inside of both doors could be used. The middle section of the case carries a sufficient number of large and small pencil compasses for a class of 30 to 35 students. The left-hand door carries large and

(*Continued on page* 19)


PLYWOOD BACK
ARRANGE HOOKS TO FIT INSTRUMENTS
LINE WITH FELT
RULING PENS
LETTERING GUIDES
2 1/4
2 1/2
18
12
24
12
48
BILL OF MATERIAL
2 PCS 1/2 x 2 1/4 x 23 1/2
4 PCS 1/2 x 2 1/4 x 11 1/2
6 PCS 1/2 x 2 1/4 x 18
1 PCS 1/4 x 18 x 24
2 PCS 1/4 x 12 x 18
2 PCS 1 3/4 x 2 x 11
ALL INSTRUMENTS ARE HUNG ON BRASS HOOKS EXCEPT RULING PENS AND LETTERING GUIDES.

Simple but well-proportioned lines characterize this mahogany end table that is easy to make.

Junior-High Students Can Make This Lovely

"Sculptured" End Table

By Russell E. Norris

Supervisor of Industrial Arts, Union-Endicott High School, Endicott, New York

THE construction of this modern end table is well within the ability of the junior-high-school student. The finished product, moreover, is quite professional in appearance. The hand work involved is not too difficult, and it gives the piece the "sculptured" look that is a feature of some of the latest designs in furniture.

From an instructional standpoint this table has much to commend it. Both hand and machine tools can be used in fabricating it so that it can be easily fitted into the woodworking curriculum at an earlier or later stage, depending on whether the emphasis is put on hand- or machine-tool operation. Related information on wood, wood fasteners, gluing, and finishing can be easily given as the student works on the project. It also makes an excellent take-home item of a quality seldom achieved.

The table illustrated was made of mahogany and finished in a rich dark tone. Lighter colored woods, such as maple, birch, or oak with a limed oak finish, or any of the blonde finishes would be very appropriate for this modern piece.

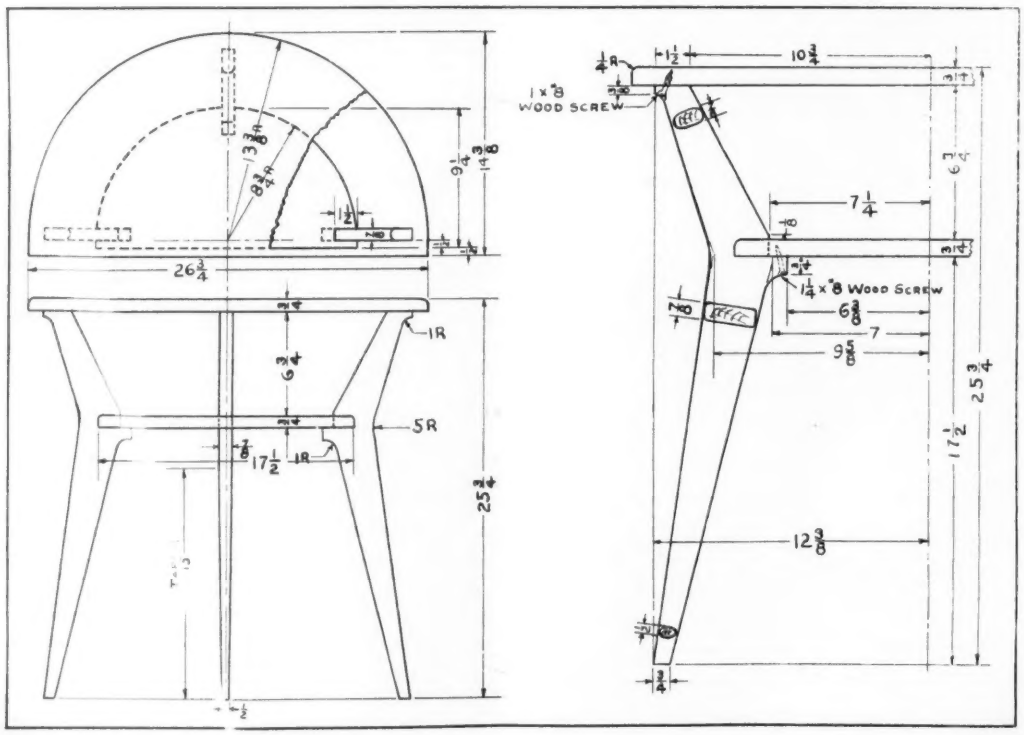
The table requires at most about 6¼ board feet of lumber, but if patterns are made of thin stock or pasteboard and the pieces nested on the stock as shown in Figure 5, considerable material may be saved. This is particularly true if several tables are to be made at one time.

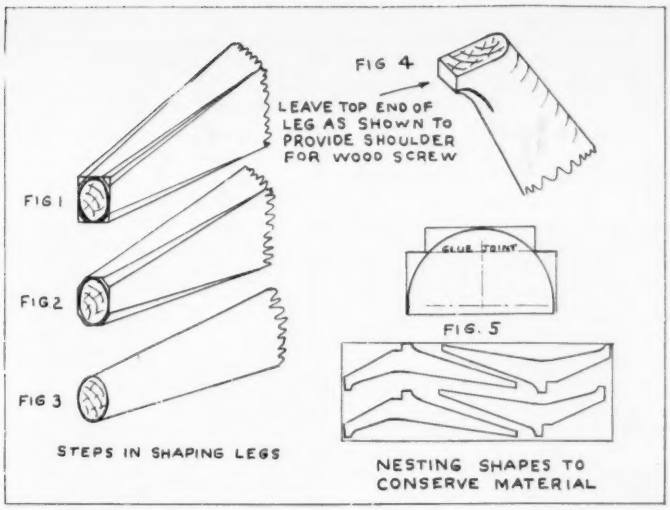
Once the lumber is dressed to thickness, all the remaining machine work may be done on the jig saw. Of course when sawing the slots in the shelf to receive the legs, care should be taken to work accurately to insure well fitting joints and maintain rigidity.

The Legs

1. Lay out a leg pattern on a thin piece of stock according to the plans.

2. Work the pattern to shape and check for accuracy.





3. Place the pattern on the stock to be used for the legs, giving proper consideration to the grain of the wood and economy of material. Outline the pattern.

4. Saw the legs accurately to shape on the jig saw or band saw.

5. Remove saw marks with block plane, spokeshave, or cabinet file, working accurately to the line.

6. On the bottoms of the ends of the legs lay out the cross section as shown in Figure 1. Hand plane the taper the required distance. Lay out the chamfers as indicated in Figure 1.

7. Chamfer the corners with a block plane as shown in Figure 2.

8. Work to shape as in Figure 3.

9. Sand with coarse sand paper to remove any small remaining corners, then finish to shape with medium, then fine sandpaper.

10. Shape the part of the leg between the shelf and the top in a similar manner. It will be necessary to use a spokeshave knife, and cabinet file to work the legs to shape. Leave the projecting portion that provides a shoulder for the screw in much the same shape as it came from the saw. See Figure 4.

11. Lay out and drill the shank diameter holes for the screws, paying particular attention to the angle. Countersink for the screw heads.

12. If $\frac{7}{8}$" stock is not available for the legs, $\frac{3}{4}$" stock may be used, but the shelf and top should be reduced in thickness perhaps to $\frac{5}{8}$".

The Top and Shelf

1. The top and shelf may be laid out directly on the stock according to the plans.

2. Saw the top and shelf to shape. When cutting the slots in the shelf that are to receive the legs, the fit should be tested by inserting the finished leg. Remove the saw marks with a spokeshave or a disk sander if one is available.

3. Lay out and shape the radius on the top corners of the shelf and top. If this is to be done by hand, a procedure similar to the one illustrated for shaping the legs should be followed, using a spokeshave on the curved edges and a block plane on the straight ones. A templet made of thin stock may be used to check the uniformity of the radius.

Assembly

1. If hard wood has been used, it will be necessary to drill the root diameter holes in the top and shelf to receive the screws.

2. After the legs and shelf have been assembled and checked for fit and squareness, the top may be centered and screwed in place.

3. If the trial assembly is satisfactory, the project may be disassembled and all the parts given a final clean up and sanding. This is a convenient time to sponge and sand all the pieces once or twice to raise any loose grain before the final assembly.

4. The final assembly is made with a neat application of glue on the joints in the shelf.

5. A final sanding which breaks all the sharp corners slightly, prepares the table for the application of the finish desired. ★

AVA Convention Report

INDUSTRIAL and vocational educators numbering nearly 3000 from all of the states and several foreign countries met in Boston November 30-December 5 for the 40th annual convention of the American Vocational Association and affiliated groups.

The association went on record again in asking the next Congress for the full George-Barden Act appropriation of $29,300,000, but there was a distinct feeling apparent that with economy in the Washington spotlight a strong fight will have to be made merely to maintain present appropriations.

Bids were also made by the association for restoration of the appropriation for distributive education by Congress and for the return of the guidance services of the Vocational Division of the U. S. Office of Education.

A call for immediate vocational training for defense-production workers was made by Secretary of Labor Maurice J Tobin, who contended that a labor reserve in this field is a critical need. Little attention was given to this plea by the convention except to ask the federal government to channel all defense training through regularly constituted educational authorities at the federal, state, and local levels.

Assistant Commissioner for Vocational Education Joseph R. Strobel, who was named to his position in the U. S. Office of Education last July, was given a vote of confidence by the delegates and the promise of full cooperation. Retiring Commissioner of Education E. J. McGrath was commended for his wholehearted interest in, and support of, vocational education.

Elected president of the AVA, succeeding Harry C. Schmid, state director of vocational education for Minnesota, was Miss Martha Creighton, professor of home economics at Virginia Polytechnic Institute, Blacksburg. Miss Creighton's name was offered by the nominating committee, but C. M. Miller, state director of vocational education for Kansas, placed in nomination from the floor the name of M. Norcross Stratton, state director of vocational education for Massachusetts. The balloting resulted in the election of Miss Creighton.

Charles W. Sylvester of Baltimore, Maryland, was reelected secretary-treasurer. The new vice-president for trade and industrial education is Robert M. Reese, Ohio state supervisor of trade and industrial education, Columbus. Margaret Browder, state supervisor of

(*Continued on page* 22)

School Shop KINKS

Payment will be made for each Kink published. Send to Editor, School Shop, Ann Arbor, Mich.

A Useful Pass

If the rules require that a student must have a pass when he wants to leave the shop room for other parts of the school building, the following idea will make it unnecessary to write out a pass each time.

Out of ¾" plywood saw a "P," which the pupil can take as his pass. The "P" must be large enough to keep the student from putting it in his pocket and also from forgetting to hang it on the rack when he returns. Only one student may leave the shop room at a time.—*Vernon D. Wilson, Lee's Summitt, Mo., High School.*

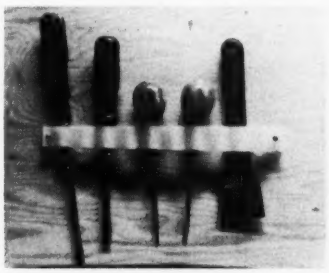
Sorting Print Shop Furniture

I have found that a color scheme of airplane dope applied to the ends of wood furniture in my junior-high print shops helps youngsters sort it by size and get it in the proper compartment of the rack.

One color can be used for each length, plus a symbol for each width, or one color for each length applied in a different pattern or design for each width. —*B. J. Dennis, Barbour School, Detroit, Mich.*

Plastic Tool Holder

The use of scrap corrugated plastic for a tool holder offers a new application for this type of plastic material. It has many advantages, including the fact that it is clean, neat and colorful, that it is simple to make and install, that maintenance is reduced since plastic maintains its color indefinitely, and that the material is flexible and elastic.



Any scrap corrugated plastic from sizes ½" x 3" x .125" to 1" x 72" x .187" can be used. The corrugations can be in various frequencies from ¾" to 3" depending on the type of tools to be mounted and the space restrictions for the tool panel.

The corrugated plastic piece can be cut in any size width or length desired by the use of a band saw, scroll saw, jig saw, or circular saw. One hole is drilled in each end of the tool holder for fastening it to the wall or panel.—*Andrew R. Kosher, Wilkes-Barre, Pa.*

Dressing Emery Wheels

Emery wheels on the electric grinder can be easily dressed by using a flat piece of rubbing brick, like the ones used by cement finishers.—*N. M. Pittman, Leverett's Chapel Independent School District, Overton, Texas.*

To Improve Ink Lettering

Ink lettering in mechanical drawing can be improved if the following procedure is followed:

First of all, everyone should have his own pen point and no one else should use it. Take a new pen point and sand the inside surface on a sandpaper pad. (The oil on a new pen point may first have to be burned off with a match.) Do not dip the pin in ink. Use a quill and place the ink above the sanded area. The sanded area resists the flow of ink down the surface of the pen point and channels it into the split part of the pen.

The pressure applied to the pen de-

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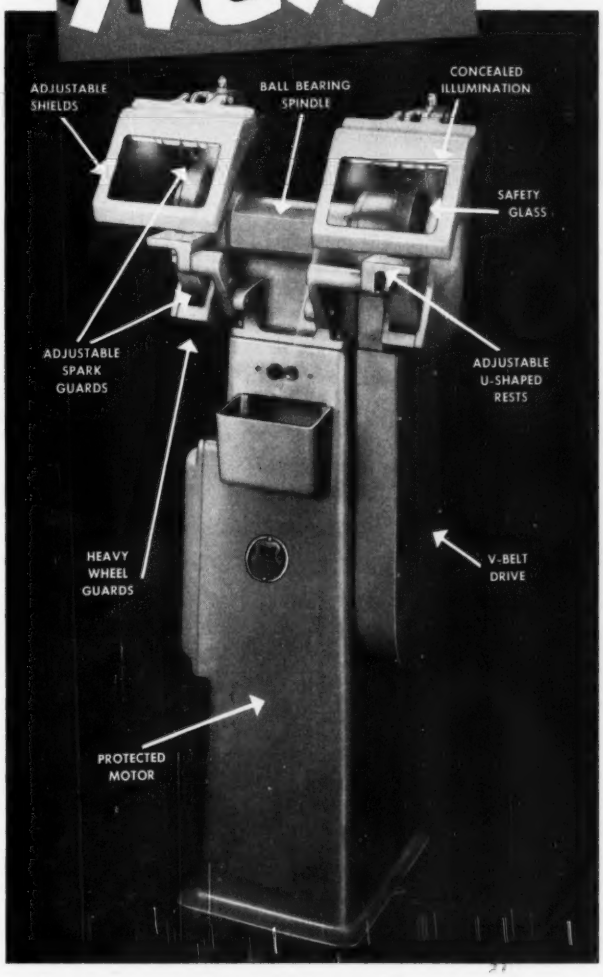
New SOUTH BEND Pedestal GRINDER



School shops will find this new industrial grinder ideal for student use. It is ruggedly built throughout to withstand hard service. The motor is enclosed in the pedestal and drives through a V-belt which removes the load and weight of the grinding wheels from the motor bearings, practically eliminates vibration and isolates the motor from abrasive dust.

Send coupon for complete information on this grinder that will give you long, trouble-free service.

SPECIFICATIONS

Wheel Size: 8" dia. (½ h.p. motor), 10" dia. (¾ h.p. motor).

Spindle: Approximate speed 2450 r.p.m. Sealed ball bearings.

Motor: Standard 2875 r.p.m. 50 cycle or 3410 r.p.m. 60 cycle, also D.C.

Over-all Dimensions: 8" Grinder, 49½" high, 18" wide, 20½" deep. 10" Grinder, 49½" high, 18½" wide, 20½" deep.

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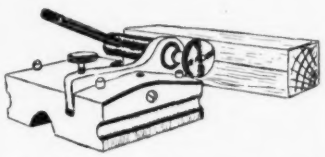
termines the thickness of the lines. By changing the pressure on the pen point, the lines can be changed at will from wide to thin.—*Harry A. Dittmar, Carrick High School, Pittsburgh, Pa.*

A Wood Marking Gauge

A surface gauge used for layout work in the machine shop can be adapted to double as a marking gauge for woodwork simply by removing its spindle and scribe and inserting a pencil in its place.



In addition to doing accurate work, this arrangement will draw the desired lines without scoring the wood as does the regular marking gauge.—*R. M. Woodbury, Natick, Mass.*

Standard Forms For Machine Study

When a teacher works with his pupils on the study of machines in automechanics, in machine shop, or in the field of electricity, he is apt to find that many questions arise which are common to all fields.

With this in mind, the universal assignment card shown below was prepared and is now being used in common by the instructors in all shops.

Universal Assignment Card for Machine Analysis

1. Name the unit under study
   Note: Understand the meaning of each word used
2. Describe the function of the unit
3. Name the unit parts
4. Describe their function
5. Trace the flow of power thru the unit

Accompanying this card there is a mimeographed answer sheet using the same headings. Blanks lines are left for the student to fill in the desired information. Under heading No. 3, "The Major Parts of the Unit" and No. 4, "The Use or Purpose of These Parts," spaces from "A" to "H" are provided. No. 5 is entitled "The Power Flows From _____ To _____" and eight blank spaces are provided.

This sheet is assembled in pads and is issued to the pupils as needed to be used by them in responding to the assignment.

The use of this card and mimeographed answer sheet tends to clarify the thinking of the pupils in regard to what the assignment calls for and provides a standard form for their replies. Obviously too, it simplifies the teacher's task when he is faced with the job of grading the results.—*Albion S. Taylor, Director of Vocational Education, Public Schools, Monroe, Mich.*

The Tip of a Crutch

In my shop I found it time consuming and tiresome to replace and repair the ends or tips on the wood vise handles. I discovered that by using ordinary rubber crutch tips on both ends of the vise handles this problem was practically eliminated. These crutch tips can be purchased from drug stores in several sizes and at nominal price. They can be glued to the vise handles and will last indefinitely.—*Walter J. Metzger, Edward L. Constance Junior-Senior High School, North Miami, Florida.*

To Display Small Models

A very simple device to hold small copper and other metal models on a display panel is to solder a thumb-tack on the back of the object.—*Harry Flaster, Brooklyn, N.Y.*

REMEMBER—if you have any short cuts you have found helpful or any other special kinks that you think shop teachers will appreciate, send them to the Editor, SCHOOL SHOP, *Ann Arbor, Michigan. Payment will be made for each kink published.*

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Diamond Dust

Abrasive comments from that doughty Scot, Tom Diamond, former head, Department of Vocational Education, University of Michigan, Ann Arbor.

Deflation Desired

As we travel through this Veil of Tears we are privileged to observe many and different types of individuals. Among these are kindly people and people who contribute much to the welfare of the human race. At the lower end of the scale we meet others who, for lack of a worse name, have come to be known as "Stuffed Shirts."

Now the expression "stuffed shirt" has different meanings to different people—all bad—but for the purpose of this discussion we are assuming that it refers to a shirt which has been stuffed with objectionable material, and fashioned in the shape of a man.

As a rule, one who merits this descriptive title is a pompous person who looks on all other forms of human life merely as agencies through which he may inflate his ego. He may be found in any social group and he is not a stranger in the field of education.

As we look around our schools, we find him appearing in both high-school and college circles. He does not appear to belong exclusively in any one subject area, and we find him most frequently in positions where, clad with a little authority, he lords it over his poor, long-suffering satellites.

The classicist assumes a superior air when he meets a teacher from the social sciences. The academic teacher politely thumbs his nose at his poor benighted brother who toils in the field of industrial arts. Some are degree-minded and view with extreme pity the unfortunate soul who has failed to expose himself to the degree mill. Even among those with degrees we find that the person who possesses an M.A. degree is apt to assume a superior air when in the presence of one who is merely a Bachelor. And in the estimation of some Ph.D.'s, they occupy a universe which is reserved exclusively for them.

The place where our friend, "the Stuffed Shirt," appears most frequently is in our institutions of higher learning. There we find one's respectability is measured by a scale on which the professor stands at the top and which goes down progressively, through various gradations, to the instructor, the fellow, and the student assistant.

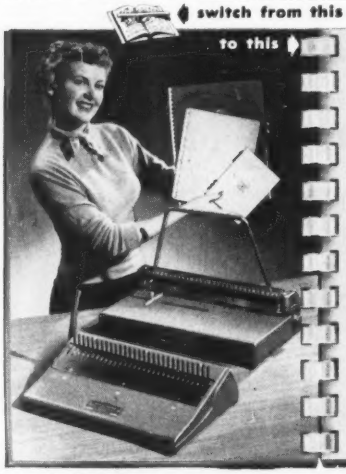
In an atmosphere of this kind, one hears such remarks as, "Why, he is only an assistant professor!" or "What do you know, he doesn't even have his degree!" The actual words in these quotations are inoffensive in themselves, but the disdain with which they are uttered indicates that they could come only from one who belongs in the "Stuffed-Shirt" classification.

Evidence could probably be found to sustain the idea that the lower a person is in the scale of human values, the more autocratic he tends to be when he is clothed in a little authority. Occasionally some of these brethren to whom this discussion applies find themselves in positions where they have opportunities to impose their wills on others. When this occurs, the "Stuffed Shirt" shows up in his real colors.

He realizes that he lives in a democracy and that an autocratic administration would be unpopular. So in order to avoid public criticism, he adopts what he is pleased to call democratic procedure, but at the same time, behind his benevolent attitude, he wields a big stick with which he belabors the unfortunate soul who dares to question his edicts. Since this is all done quite subtly, the autocrat fails to realize that no one is being fooled but himself.

If there is a moral attached to this discussion, it might be that one should be careful in everything he does lest he

switch from this



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be classified as a "Stuffed Shirt." Teachers are people, and, by authority of one of our historical documents, "All men are created equal." Since they are equal, what they teach is merely evidence of individual interest and choice. Moreover the degrees they have are merely evidence of artificial hurdles which should in no way affect the nature of the material with which the shirt is stuffed. ★

Convention Calendar

California Industrial Education Association, Santa Barbara, March 20-21.

Ohio Industrial Arts Association, Neil House, Columbus, March 26-28.

Illinois Vocational Association, Peoria, March 26-28.

Michigan Industrial Education Society, Civic Auditorium, Grand Rapids, April 16-18.

New York State Vocational and Practical Arts Association, Hotel Statler, New York City, April 23-25.

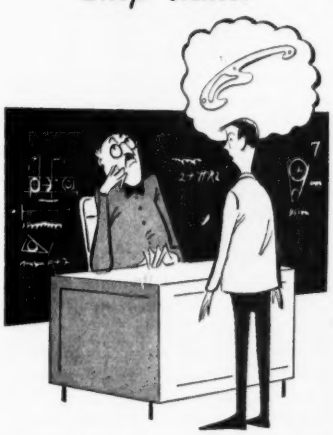
Indiana Industrial Education Association, Civic Center, Hammond, April 23-25.

American Council of Industrial Arts Supervisors, Statler Hotel, Detroit, April 28-29.

American Council of Industrial Arts Teacher Education, Statler Hotel, Detroit, April 29.

American Industrial Arts Association, Statler Hotel, Detroit, May 1-3.

Shop Tickler



Nomenclature is always a problem with students when they are beginning a subject. Recently one of my students came up to the desk with the following query:

"May I use one of these—ah, er—these—hmm—one of those crooked triangles?"—*Al Wilson, Lapeer, Michigan, High School.*

[Ed. Note: Readers are invited to contribute short humorous items, illustrated or not, from their teaching experience to this new department of School Shop.]

Drafting Case . . . *from page 11*

small dividers, large and small inking compasses, ruling pens, and erasing shields. The right-hand door carries an assortment of irregular curves, an adjustable protractor triangle, and lettering guides. The case is lined with colored felt, so the instruments show up well. The felt lining also provides a soft surface for the instruments to rest on while hanging in the case. All instruments except the ruling pens and lettering guides are hung on brass hooks. The ruling pens and lettering guides are supported by a wooden block at the bottom of each door. The case when opened measures 2½" x 18" x 48"; when closed it measures 5" x 18" x 24". It may be hung any convenient place during class period, and stored in a cabinet or closet at the end of the day.

Since the case has been built, our students have taken a keen interest in the care of our instruments. Maybe the reason for this motivation has been the student participation in the project. Regardless of what the answer may be—this case is the best method for storing and checking instruments that we've used yet. ★

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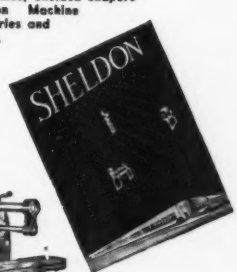
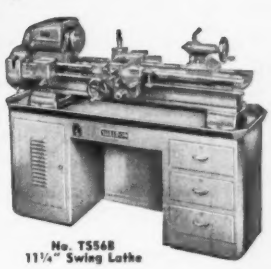
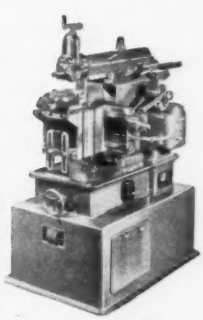


Horizontal Milling Machine



No. TS56B 11¼" Swing Lathe



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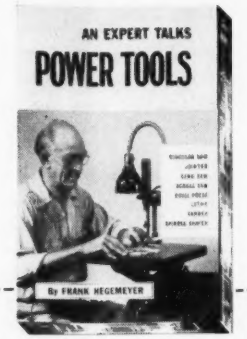

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No matter how well you know these tools, Frank Hegemeyer will give you interesting new angles on the Circular Saw, Jointer, Drill Press, Band Saw, Scroll Saw, Lathe, Sander, Spindle Shaper. You will find clear explanations, beautifully sharp close-up photos of all important operations and techniques, detail drawings.

CLEAR

One of Mr. Hegemeyer's greatest assets as a writer is his ability to get across to others the intricacies of machine operations in woodworking—a subject which easily could become unwieldly in the hands of one less skilled. The author makes his easy-to-understand text still simpler with specially posed close-up photographs and numerous mechanical drawings. Supplementary pages review some of the problems of those who work with power tools.

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ABOUT THE AUTHOR: Frank Hegemeyer began working with tools and wood 45 years ago. Many of his furniture and other projects are manufactured commercially. Quite a few won prizes. His jigs and production devices have helped a number of woodworkers, some of whom use their shops for profit. For 20 years Mr. Hegemeyer has been writing articles on woodworking. His regular column Woodworkers' Information Department *is one of the best-read features of Homecraft magazine.*

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ABOUT YOUR FELLOW TEACHERS

ROBERT L. WOODWARD has been appointed consultant in industrial arts by the California State Department of Education. Mr. Woodward was formerly electrical shop instructor at North Hollywood Junior High School.

CHARLES F. BAUDER who retired last June from the directorship of vocational education in Philadelphia, died on October 12, 1952. He was 66 years old.

After 33 years as dean of the division of industrial education, CLYDE A. BOWMAN will retire from The Stout Institute at the end of the first semester in January. JOHN A. JARVIS will succeed Dean Bowman.

SAM FICK, chief of the Bureau of Industrial Education of California, has been invited by the German government to participate in a survey of vocational education for German schools.

A two-year leave of absence has been granted to JOE STEVENSON, vice president of the San Diego Vocational School, so that he may serve as consultant on vocational education in Indonesia.

OLAN OATMAN has taken a position on the industrial education faculty of Southwest Missouri State College.

HERBERT S. WOOD, formerly principal of Fremont High School, Los Angeles, California, has been appointed director of Los Angeles Trade-Technical Junior College.

T. B. MCCONNAUGHY has become supervisor of the trades and industrial education program of the Ohio State Department of Education with headquarters at Kent State University, resigning his position with the Massillon public school system.

TOM DEAN, a former member of the industrial-arts faculty at Iowa State College, has been appointed to the Long Beach State College, Calif., staff.

REGINALD D. COPPERNOLL has retired from his position as supervisor of industrial arts after 33 years in the Niagara Falls, New York, public schools.

HARVEY URY has accepted the position of teacher-coordinator for the industrial cooperative training program at Mamaroneck, N. Y. He is a former industrial-arts teacher at Averill Park, N. Y.

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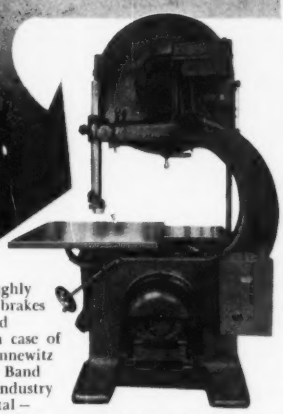

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IN THE Morning Mail . .

[Brief comments about SCHOOL SHOP and the field it serves are invited. Address the Editor. SCHOOL SHOP. Ann Arbor, Michigan.

Dear Sir,

Industrial-arts teachers often devote too much time to the teaching of manipulative skills in the construction of shop projects, and, as a result, in many cases the objectives of the program are not being fulfilled. New equipment, new tools, and new operational processes seem to receive more discussion, more panels, more conferences than the pupil who should be the most important factor in any teaching situation, and, therefore, should receive first consideration. . . .

It may be that the reason for this attitude on the part of some industrial-arts teachers is that junior- and senior-high-school administrators judge the success of an industrial-arts program on the looks of the shop and the size, quantity, and quality of the projects made. In some cases, the fault lies with the shop instructor for the same reason. . . .

In the eyes of other professional groups and in some cases of the community, the industrial-arts teacher is still in the "cellar stage" of education. In view of this, many shop teachers in self defense will concentrate all of their efforts, so it seems, on producing the finest looking projects and then place them on public display as tangible proof that the industrial-arts department is doing an excellent job. . . .

Industrial-arts teachers should strive to bring their teaching to a more advanced professional status. This can be accomplished for the most part by practicing the progressive educational and industrial-arts philosophies as taught on both undergraduate and graduate levels, although too many of our teachers colleges still place the emphasis on subject-matter background with its emphasis on the manipulative skills.

Much of the mixed feeling toward the whole area of industrial-arts education is due to the lack of a sound basic philosophy on the part of educators as a whole. If a philosophy, if a oneness in policy, if this common understanding could be held by responsible educators, it would not be too long before the whole industrial-arts program would be considered just as important as any other in secondary education.

John Pasakavitch,
Brooklyn, Conn.

AVA . . . . . *from page* 13

home economics for Tennessee, was elected vice-president for home economics.

Executive Secretary M. D. Mobley announced that the 1953 convention would be held November 23-26 at Chicago, Illinois, and that the 1954 convention would be held in San Francisco.

Emanuel E. Ericson, professor of industrial arts at Santa Barbara College, University of California, was the recipient of the Distinguished Service Citation given by The Ship, organization of representatives of firms in the field of industrial education. He received a suitably engraved wristwatch and a framed copy of the citation from Kenyon S. Fletcher, Ship representative.

The Industrial Arts Policy and Planning Committee, under the chairmanship of Shriver L. Coover, director of industrial arts at the California, Pa., State Teachers College, announced the forthcoming publication this spring of a bulletin entitled "Principles of Shop Planning for Teachers, Administrators, and Architects" which will be issued under the direction of the Shop Planning Steering Committee of which William Mason is the chairman. A Committee on Recruitment was also organized under Lynn Monroe as chairman to develop materials on recruiting outstanding students for industrial-arts teaching. The constitutions of the Policy and Planning Committee and of the AVA Industrial-Arts Division will also be coordinated by a new committee of which G. Wesley Ketcham is chairman. The bulletin, *Improving Instruction*, will also appear this coming year in a revised form, according to Mr. Coover.

A proposal to increase dues for AVA members was withdrawn at the business meeting before being voted on and a resolution was passed requesting each constituent state association to make additional financial support available to the national office. ★

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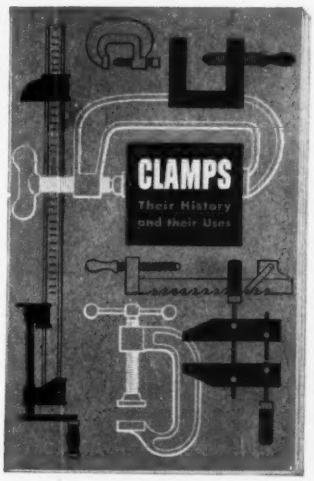

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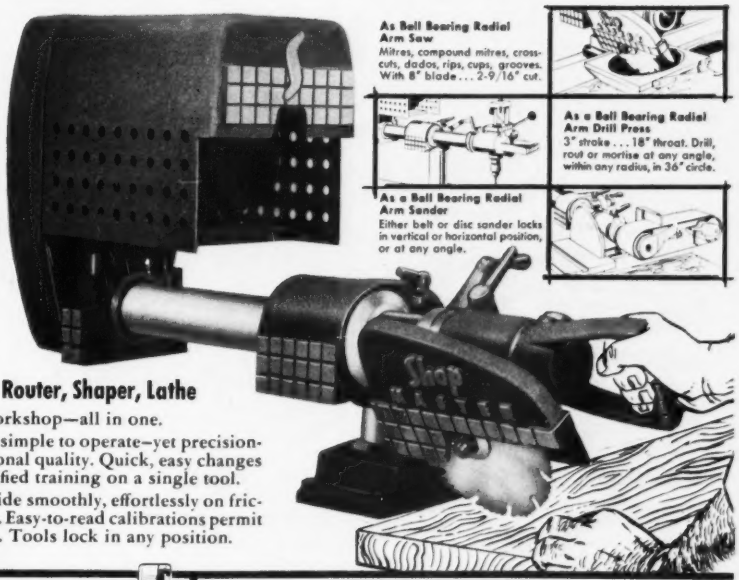

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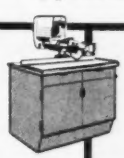

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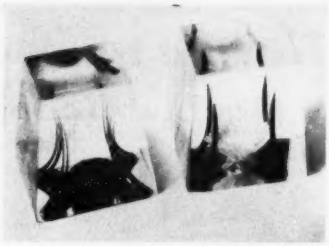
How to Carve Curved Lines in Plastics

By Philip E. J. Brooks
Bloomington, Illinois, High School



Graceful curved lines can be carved in plastics by using the technique described in this article.

UNUSUAL effects can be achieved in the internal carving of plastics by the use of this technique. Floral designs lend themselves particularly well to this variation in internal carving. Moreover, it dramatically illustrates the "homing" characteristic of acrylic plastic, or its property of returning to its original shape after being heated and formed and then reheated.

The objective is to create curved internal cavities in the plastic to simulate leaves or other curved effects. Obviously this could not be done by the usual method of internal carving with drills.

The technique is quite simple and consists of heating a block of plastic in the oven at 300° for about 45 minutes or until the block becomes soft. The block must be handled while the student wears canvas gloves, of course, as it is very hot.

When the block is heated sufficiently, remove it from the oven and place it between two pieces of wood and compress it in a vise until it is as flat as possible as shown in Figure 1.

After it has cooled, the original outline of the bottom will still be visible. Carving should be done as close to the corners as possible, with care being taken not to let the drill go all the way through. Placement of the drill holes is shown in Figure 2.

The block is then heated again at 300° until it returns to its original shape. The holes that were drilled will be curved in a graceful shape and may be colored in the usual manner.

The entire effect is novel and stimulates the interest of the students in the art of internal carving as well as dramatizing an unusual property of the acrylics. This method can be used for paper weights, night lamps, and other popular items. ★

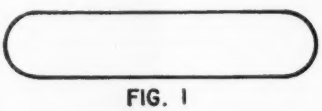


FIG. 1

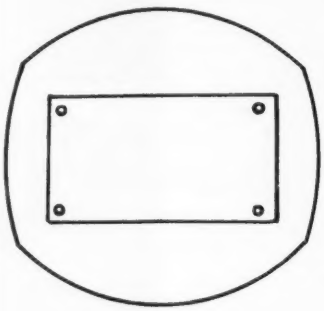
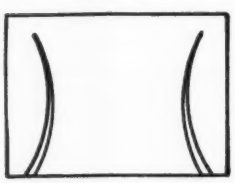


FIG. 2



ORIGINAL SHAPE

Heat and pressure are used to flatten the block for drilling. When reheated, the block assumes its original form and drilled holes are curved.

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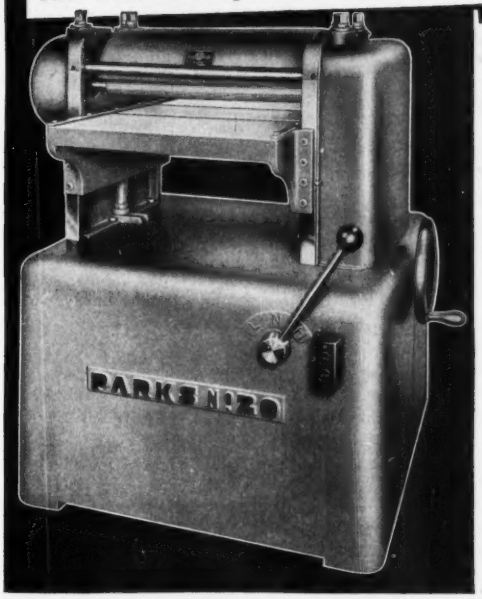

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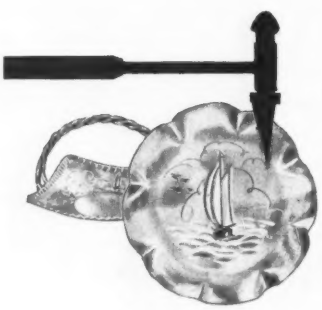

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Electricity ranked second. Other industrial activities which were recommended by over one-half of the laymen and school administrators included, in the order mentioned, mechanical drawing, home mechanics, machine shop, and auto mechanics.

Although administrators of industrial education programs generally recognize the necessity for a community occupational survey when establishing or expanding a day-trade program, it is interesting to note the trades in which laymen and school administrators believe schools should provide training. These trades included, in order of preference, carpentry, auto mechanics, electric wiring, machine shop, and welding.

Most school administrators went along with the idea that industrial arts should be provided throughout the high-school level and that vocational-industrial education, which includes diversified occupations and day-trade subjects, should be postponed until the last year or two of high school or later. Over 80 percent indicated that industrial arts should be included in grades 9-12, while over half reported that they believed it should be offered in grades 7-12. The majority of school administrators favored diversified occupations for inclusion in grades 11 and 12. However there were about one-third who indicated that they were uncertain as to the grade levels. About 40 percent of the respondents were uncertain as to the grade levels in which day-trade programs should be operated.

A surprisingly large number of school administrators would make industrial arts a required course for high-school boys and girls. A little less than three-fourths were of the opinion that it should be required for boys and slightly less than half believed it should be required for girls. On the other hand, there were about 20 and 30 percent respectively who would not require industrial arts for boys or girls. It was the consensus of the school administrators that the required units in industrial arts, if any, should be provided in grades 9 or 10.

Implications

The data just summarized has two or three important implications for people concerned with the establishment and development of industrial-education programs, especially in cities outside the larger metropolitan areas.

How can the schools in the smaller cities possibly provide youth with the advantages of a well-rounded program of industrial arts unless it resorts to the general-shop type of organization? This study revealed that over half of the laymen and school administrators favored six types of industrial activities for inclusion in an industrial-arts program. Yet most schools would probably find it difficult, if not impossible, to equip and operate two unit shops the way they should be, much less trying to equip and operate six unit shops. However, with a general-shop type of organization the advantages of a well-rounded industrial-arts program become possible for nearly all high schools. Industrial teacher-trainers are taking greater cognizance of this fact by placing greater emphasis on the methods of organizing and teaching in a general-shop setup.

Smaller cities face much the same problems in providing adequate programs of vocational-industrial education for high-school students that they do with industrial arts. The cost of providing the types of shops and laboratory facilities required for a well-rounded day-trade program is generally prohibitive. Furthermore there are usually insufficient students who plan to follow the particular trades in which the schools provide training to warrant the expenditures. The problem of placing all the trainees in the types of jobs for which they were trained is also difficult.

With a cooperative diversified-occupations program these problems can practically be eliminated. Facilities for learning job skills are provided by the employers. Schools and employers cooperate to provide training to students in many more different occupations than would be possible otherwise. The possibility of training more workers in a particular occupation than can be absorbed is reduced to a minimum because each student must first be employed in the occupation on a part-time basis before being enrolled in the program.

Administrators and teachers of industrial arts should be reluctant to advocate that high-school students be required to enroll in their programs. They should check first to make certain that the courses in their programs meet the objectives of industrial arts. Then, if these objectives are being achieved, one required course in general shop for junior-high-school-level boys can be justified. Similarly, it would seem that one required course for girls in home mechanics could be advocated. If the younger boys, especially, can be shown the educational benefits to be derived from a good course in industrial arts, the future of a school's industrial-arts program will be greatly enhanced. *

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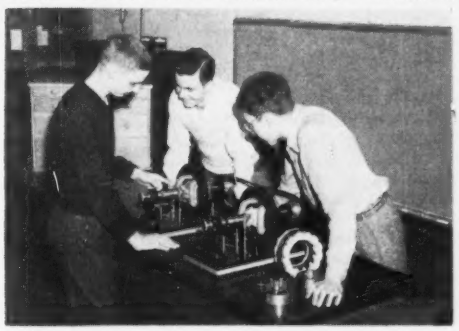

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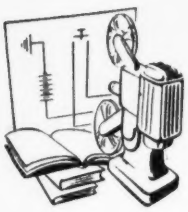

Books:

Education for Safety Through the School Shop. 60 John St., New York 38, N.Y.: The Association of Casualty and Surety Companies. 1952. Pp. 109. $1.10.

This text was designed to aid teachers in integrating safety into their course material. It contains a bibliography of 70 sources of safety literature on school-shop practices and equipment. The contents are arranged in a manner that should enable teachers to select pertinent material readily. The book fills a long felt need on the part of teachers for suggestions on methods of teaching safe techniques in their classes. In view of the growing consciousness on the part of school people of the hazards existing in schools it is believed that there should be at least one of these books in each school in the country, and all teachers should become familiar with its contents.

Motor's Truck & Tractor Repair Manual (5th Edition). 255 West 55th St., New York: Motor, 1952. Pp. 928. $8.00.

This volume covers comprehensively the parts of the engine and transmission of most trucks and tractors in common use today. It displaces former issues of the book since it includes all of the recent modifications and improvements on equipment of this kind. Profusely illustrated, it will be invaluable as a guide to the repair mechanic, and it should be included in the library of every school where automechanics is taught.

General Shop Electricity (Revised edition). Dragoo and Porter. Bloomington, Ill.: McKnight & McKnight Publishing Co., 1952. Pp. 119. $1.25.

This book will be useful as a text both in unit and in general shops. It is so organized that it permits each individual pupil to progress at his own speed. The content and method are based on the units recommended by a committee of the AVA, which set up "The Standards of Attainment in Industrial Arts Teaching." The projects included illustrate some of the more important concepts about electricity.

A. W. Dragoo is Emeritus Assistant Professor at Illinois State Normal University. C. B. Porter is an instructor in industrial arts at the same institution.

The Practice of Printing (Revised edition). Polk. Peoria: Chas. A. Bennett Co., Inc. 1952. Pp. 324. $3.60.

This is the fourth edition of a book which was published originally in 1926. During the years it has been used widely as an authoritative textbook. It has now been revised and enlarged, to reflect the latest trends in the printing industry.

Ralph W. Polk was formerly Supervisor of Printing Education in the Detroit Public Schools.

60 Power Tools and How to Build Them. Chicago: Popular Mechanics Press, 1952. Pp. 144. $2.50.

The hundreds of plans and pictures included in this book make it of special interest to anyone who wants to build small power tools. Easy-to-understand instructions are provided for building a drill press, table saw, lathe, and many other commonly used machines. The book takes the place of the previously published *Forty Power Tools.* This material has been compiled and edited by the editors of *Po ular Mechanics* magazine.

Basic Lessons on Printing Layout. Karch. Milwaukee: Bruce Publishing Co., 1952. Pp. 140. $1.96.

This is a manual of basic principles of design and layout in printing. It is a book for beginners in the field of printing in which the elements of layout are stressed. It is divided into four main sections: typographic design, display composition, correct spacing, and how to copyfit. The book is well illustrated, and it contains a number of short-cut tables which simplify printshop mathematics. It will be a valuable addition to the library of every school print shop.

R. Randolph Karch is Senior Adviser, Trade and Industrial Education, in the State Department of Public Instruction, Harrisburg, Pennsylvania.

Farm Mechanics Power Tool Manual. Mix and Moore, Editors. Chicago: Goodheart-Wilcox Co., Inc., 1952. Pp. 352. $3.50.

This book is intended to be used in school shops in rural areas. It is profusely illustrated and should prove a valuable aid to teachers who have classes in farm mechanics. All of the machines likely to be found on a farm are considered, and definite suggestions are included on how to use them effectively.

Floyd Mix was formerly Farm Mechanics Editor on the *Southern Agriculturist.* J. C. Moore is District Supervisor of Agricultural Education, Missouri State Department of Education.

Pamphlets:

The Fireman and Electrical Equipment is a bulletin prepared for firemen but it has much in it that should be of interest to teachers who are concerned with the development of safe practices in the handling of electrical equipment. The 64-page pamphlet is available from the University of Michigan

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Press, Ann Arbor, at 50c and was published for the University of Michigan Extension Service and the State Office of Vocational Education.

The Practical Pedagogue is a 64-page booklet by Bostwick and Garsten, members of the staff of the Murrell Dobbins Vocational-Technical School of Philadelphia, which gives a summary of shop-teaching techniques. Presented in a sprightly manner, the volume covers such topics as meeting the class for the first time, year-round practical procedures, glamorizing teaching, and principals of learning and teaching. Available at $1.65 from School Shop Aids, Box 3216, Philadelphia 21, Pa.

Audio-Visuals:

Industrial Education Films and Filmstrips is a comprehensive and annotated listing of films and filmstrips classified by various shop areas. Essential information such as running time, sources, charges if any, and a brief summary of each film or filmstrip is given in this extremely valuable catalog which should be in the hands of every shop teacher. Available at $2 from D. P. Barnard, Director, Audio-Visual Education, The Stout Institute, Menomonie, Wisconsin.

Slides is a revised data book which provides a comprehensive and understandable reference manual for shop teachers interested in making their own slides. Step-by-step details are given for various techniques of slide production. Available from Kodak dealers at 50c.

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News

HAPPENINGS IN INDUSTRIAL EDUCATION

Industrial Arts Conference

MEETING for the 39th time, the Industrial Arts Conference convened November 13-15 at the LaSalle Hotel in Chicago, Ill., under the chairmanship of President Verne Fryklund of The Stout Institute. Spirited discussion of a number of different topics occupied the teacher trainers with time being given to the Ford Industrial Arts Awards program, training for competency of teachers, shopwork for graduate credit, and training for the dual function of teaching industrial arts and trade and industrial education. Resumes were given of several doctoral dissertations.

Connecticut Groups Meet

THE Connecticut Industrial Arts Association and the Connecticut Vocational Association combined forces for the first time to meet together October 31 at the Bullard-Havens Technical School, Bridgeport, with over 500 teachers in attendance. A combined general meeting was held in the morning under the chairmanship of Laurence Marinaccio at which a talk was given by Lawrence W. Prakken, editor of SCHOOL SHOP. The members then broke up into small groups representing both organizations and discussed the objectives of each of the programs in an effort to create better understanding. Richard Howes was chairman of the luncheon session at which an assessment of the program was made.

Growth in IA Programs

A TOTAL of 435 high schools in Illinois, or 61.2 percent of all the high schools in the state, now offer industrial-arts programs, the *Illinois Vocational Newsletter* reports.

Six years ago 324 high schools or 43 percent included industrial-arts programs. This is a growth of 111 new programs, an increase of 18.2 percent in the last six years.

New Jersey IA Program

GORDON O. WILBER, president of the American Industrial Arts Association, spoke on "Industrial-Arts Developments on the National Level" at an industrial-arts program held October 30 at New Jersey State Teachers College, Newark. The meeting was sponsored by the college, the Industrial Arts Guild of the college, and the American Industrial Arts Association.

Also speaking at the meeting were John A. McCarthy, assistant commissioner of education for New Jersey, and Kenneth Brown, assistant director of fine and industrial arts, Philadelphia.

Convention in California

THE annual convention for the southern section of the California Industrial Education Association will be held on January 10 at Orange Coast College, Costa Mesa. Student project exhibits will be featured.

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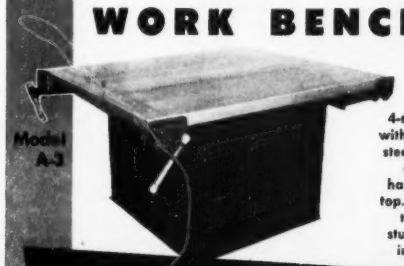

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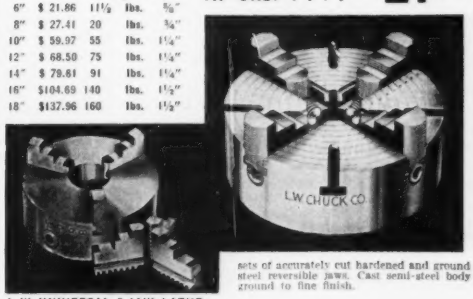

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News from INDUSTRY

New Carburetor Handbook

A new 46-page carburetor handbook entitled, *Know Your Carburetor*, has been written and published by the research staff of the Gumout Division of Pennsylvania Refining Company.

The new booklet describes in non-technical language the basic theory of the carburetor, its parts, common troubles, and their correction. *Know Your Carburetor* is pocket size and divided into 10 sections, including chapters on How Carburetors Work, Carburetor Trouble, Carburetor Care, How to Clean, How to Adjust, etc. Each section contains descriptions and detailed illustrations.

The handbook has been made available free to instructors, students, and educational institutions. Those interested in receiving copies should write Pennsylvania Refining Company, Department "E", 2686 Lisbon Rd., Cleveland 4, Ohio, mentioning SCHOOL SHOP; *or check no. 32 on the coupon.*

Carboloy Offers Two Permanent Magnet Kits

Two kits of permanent magnets are available from the Carboloy Department of General Electric to enable educational institutions to devise their own new uses for permanent magnets.

Carboloy permanent magnets are being used for educational layouts where magnetic blocks are placed on a sheet of metal and moved around to illustrate a presentation.

Of the two kits, shop package no. 1 contains 48 magnets in eight styles, with up to two pounds of "pull" for each unit. Shop package no. 2 contains 18 larger magnets.

Descriptive literature regarding these kits may be had by writing the Carboloy Dept., General Electric Co., Detroit 32, Mich., mentioning SCHOOL SHOP; *or by checking no. 33 on the coupon.*

Each item listed above is numbered. Check the numbers of the items you want, and mail the coupon, properly filled in, to . . .

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1-53

Iowa Firm Introduces New 14" Band Saw

Heston & Anderson, manufacturers of woodworking machinery, announce the addition of the 14K band saw to their line. This new saw is a 14" model, equipped with a 20" x 23" tilting table made of ribbed cast iron. It has a capacity of 12½" vertically and 13¾" horizontally.

The new saw's frame and base are made of grey iron and steel for maximum stability. The motor base is adjustable and requires no belt-tightening device. Upper and lower wheel guard is one piece and opens instantly, on a hinge, for changing blades.

The upper wheel spring suspension device and blade tension hand wheel are said to be extremely simple, yet effective. The free-turning hand wheel raises or lowers the dynamically-balanced upper wheel for blade tension.

Descriptive literature may be obtained by writing Heston & Anderson, Fairfield, Iowa, mentioning SCHOOL SHOP; *or check no. 34 on the coupon.*

Snap-On Features Two-Speed Soldering Iron

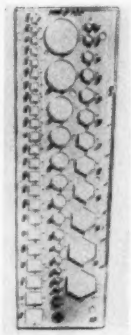
Snap-on Tools Corporation announces a light-weight, two-speed soldering iron, the R-115A, which weighs only 9 ounces—a feature which makes it easy to control and enables it to heat to soldering temperature in 40 seconds.

This fast heating is accomplished with a two-speed circuit. Depressing the thumb button on the handle delivers 100 watts at the tip for fast heating and for heavy jobs. Once the iron is heated, it "idles" at 25 watts, maintaining proper temperature for continuous operation.

All tips are plated with Vanderloy, a substance which protects the copper from deterioration. This plating takes tinning more readily than copper and gives extra hours of service, even under continuous operating conditions.

For more information write Snap-On Tools Corp., Kenosha, Wis., mentioning SCHOOL SHOP; *or check no. 35 on the coupon.*

C-Thru Ruler Presents Transparent Template



A transparent template is the newest drawing aid introduced by the C-Thru Ruler Company, and contains the most popular sizes in hexagons, circles, and squares—all in a straight line for ease of comparison and operation.

Said to be of unusual interest and value are the bevelled edges on all working surfaces to allow the use of either pencil or ink. Lugs raise the template from paper surface and eliminate smudging. The template also has a 6" ruler marked in 16ths and this ruling edge is bevelled also.

To obtain more information, write The C-Thru Ruler Company, 827 Windsor St., Hartford, Conn., mentioning SCHOOL SHOP; *or check no. 36 on the coupon.*

General Binding Corp. Opens New York Office

General Binding Corporation, manufacturer of plastic binding equipment, has established a new sales and service office with warehouse facilities at 79 Madison Ave., New York, N.Y.

The products of General Binding Corp. make it possible for any organization to do their own binding jobs economically, attractively.

For further information write General Binding, 812 West Belmont Ave., Chicago 14, Ill., or at their new New York address mentioning SCHOOL SHOP; *or check no. 37 on the coupon.*

New Literature:

How to Plan a School Workshop is the title of a booklet offered by Delta Power Tool Division, which contains 30 illustrations of well-arranged school shops throughout the United States. Line drawings accompany each illustration. A bibliography gives 15 sources of ideas for shop planning and an extensive listing tells of operating manuals, classified projects, and floor plans. Formerly $1. For free copies write Delta Power Tool Div., Rockwell Mfg. Co., Dept. SW-D15, Pittsburgh 8, Pa., mentioning SCHOOL SHOP; *or check no. 38 on the coupon.*

The New 1953 Catalog for the Cincinnati Milling Machine Company is just off the presses. Enlarged by four pages and containing the new line of Hydroform Machines and precision grinding wheels, this general catalog is available on request to the Cincinnati Milling Machine Company, Cincinnati 9, Ohio. Please mention SCHOOL SHOP when writing; *or check no. 39 on the coupon.*

Modern Arc Welding is the title of a new 544-page comprehensive and practical textbook now available for the student or instructor. It is illustrated with over 600 photographs of operations as well as diagrams and charts. For further information write the Hobart Trade School, Hobart Square, Troy, Ohio, mentioning SCHOOL SHOP; *or check no. 40 on the coupon.*

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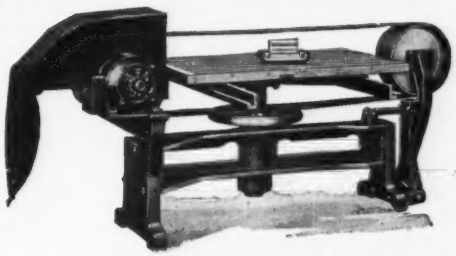

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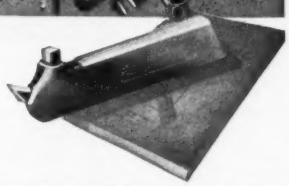

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Washington . . . . *from page 36*

or entirely revamped to take away its New Deal flavor.

The alternatives are these: Create a department of human welfare to include the Office of Education; create an independent national board of education; scatter the units of the FSA to old-line departments. Where the Office of Education would go if the latter scheme is adopted is unknown.

The Republicans will, of course, be slow in making up their minds. This will result in a long period of uncertainty and probably confusion as to the future of the Office of Education and its services.

Time for Reappraisal.—Is it time for a national stock-taking in the industrial arts? Some leaders in Washington feel 1953 is an ideal year for such an undertaking.

This feeling is fostered by the change in the administration in Washington; by the new leadership now at the helm of the two labor organizations, the CIO and AFL; and the reappraisal of vocational education going on under Commissioner McGrath's Committee of Eight. Why not, also, a reappraisal of industrial-arts education?

There have been many recent gains in the field: we have more teachers, more shops, more pupils. But there is still no agreement on the main issue. We still have two camps—those who would concentrate on hand and machine processes and techniques, and those who would concentrate on the understandings that industrial arts have to offer pupils.

This reporter has held long talks with federal officials on this topic. Some of them feel that it would be appropriate for a national commission to take a long and deep look at the industrial arts, find out where we are and where we are tending.

One suggestion is that such a commission should have a majority of laymen and people from fields other than industrial arts. "Industrial arts has too long been too far removed from the people and their desires," said an Office of Education specialist. "And many industrial-arts teachers leave only a fuzzy idea of how their subjects fit into the over-all curriculum. It's time to correct these two deficiencies."

Best of '52.—This is the time of year when Washington editors make their annual list of what they call "the major educational events of the year." The value of this armchair activity is a bit uncertain. Nevertheless, here are some

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of the major happenings of the past 12 months as seen from the national vantage point:

(1) Congress enacted the Veterans Readjustment Assistance Act of 1952, also known as the Teague-Rankin Bill, or G.I. Bill No. 2. This measure has been hailed as a vast improvement over the first G.I. Bill—fairer to the veteran, fairer to the taxpayer.

(2) The Federal Communications Commission reserved 242 television channels for exclusive use by schools and colleges. This decision has been compared in importance to the Ordinance of 1785 which set aside public land for public education.

(3) The National Council for Accreditation of Teacher Education began its work. If the promises of this agency are fulfilled, teacher education will be raised a notch or two in the near future; will be improved in quality as the years go on.

(4) South Carolina voted to abolish its public-school system if the Supreme Court wipes out segregation. This development reflects the depth of the American dilemma, as well as the imminence of the end of the dual school system in the United States.

(5) Congress defeated Senator Hill's plan to use resources from off-shore oil for public education.

Among the top events of 1952 the editors also listed the appointment of the Committee of Eight to reappraise vocational education. More on this development next month. ★

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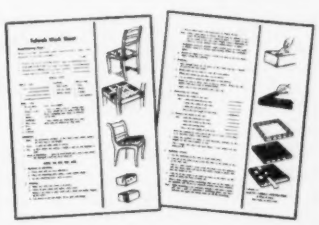

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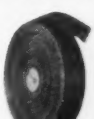

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Puzzled and Jittery.—The Republicans are in town. And in control. This fact both puzzles and gives Washington educators the jitters.

They are puzzled because there is hardly an official in the Capital who has had experience working with a Republican administration. For the last 20 years Washington has known nothing but New Deal and Fair Deal regimes.

They are jittery because Republican bigwigs have declared flatly during the political campaign that education is a local and state function. The GOP platform promised nothing, said nothing about the federal government's role in supporting education.

What makes Washington officials especially nervous is the fact that Rep. John Taber (R.,N.Y.) will be chairman of the House Appropriations Committee. Mr. Taber has already warned that no new and untried educational programs will be approved; and that even the old, established programs will feel the slash of his ax.

Who will stand up against Mr. Taber and his announced purposes? The sad fact is that the 1952 elections have taken out of Washington those Congressmen who were known to be friendly to vocational education. Perhaps some new friends will appear on the scene. But as yet all is a question mark. All is uncertainty.

A Bright Spot.—There is only one bright spot in this gloomy picture. President-elect Eisenhower is on record with the following words: "Our magnificent system of vocational education is constantly developing increased understanding of raw materials, and is helping to develop the skilled hands and the clear minds essential to turning those raw materials into useful wealth." In other words, the General is for it.

There is still another piece of evidence that General Eisenhower is personally friendly to vocational education. At the height of the campaign one of the General's executive assistants wrote to the American Vocational Association:

"No one in America, it seems to me, is more concerned than General Eisenhower with the fullest use of this country's productive skills as the best safeguard against the perils the United States faces today. The development of vocational education to the fullest extent possible is, I know, one of the General's major concerns, and one which he considers vital to the survival of American freedom."

The question is: How will the General translate these words into legislation which the economy-minded Congress will approve?

Some Questions.—President-elect Eisenhower's appointment of Mrs. Oveta Culp Hobby to be the new administrator of the Federal Security Agency, of which the Office of Education is a unit, has raised some interesting questions.

Is Mrs. Hobby, for instance, interested in vocational education and industrial-arts education? In charge of the over-all administration of the Office of Education, her beliefs on this matter are important.

Mrs. Hobby, as director of the Women's Army Corps (WAC) during the war, was in charge of vocational education for the women in the WACs, and she undoubtedly knows the value of it. But how she feels about the role of the VE and IA programs in the public schools is anybody's guess at this time.

The appointment of a woman to this post, now held by Oscar Ewing, also raises the question as to whether a woman also might be appointed to head the Office of Education to replace Earl J. McGrath. Mr. Eisenhower, as this issue goes to press, has given no indication that he plans to appoint a new Commissioner of Education, but since the office is an appointive one, it is possible that he may want to name his own choice for the job.

Who Knows Where or When?—What will happen to the Office of Education under the GOP? At the present time the Office is a unit of the Federal Security Agency. In essence, the FSA is a holding company created by the New Deal to oversee the social security board, public health, children's bureau, and other services dealing with human welfare.

Throughout its existence the FSA has taken the lead to fight for New Deal plans—medical insurance, federal scholarships, broader social-security coverage. Talk in Washington is that this New Deal creature will either be abolished

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